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ABSTRACT

This report discusses assessment and placement policies for developmental education in the Massachusetts Community College System. Since 1989, officials at community colleges across the state have implemented a series of assessment practices in reading, writing, and mathematics to assure correct placement for incoming first-year students. To clarify the missions of these practices and to improve their effectiveness, the Massachusetts Community College Developmental Education Committee (MCCDEC) was created, bringing together administrators and faculty from the state's 15 community colleges. MCCDEC undertook the task of identifying current practices and developing comparable models of assessment and developmental education that would be recommended for implementation at all of Massachusetts' community colleges. This report describes the committee's process, including its survey of current practices at colleges, and places the Massachusetts system in a national context. Recommendations for effective developmental education and assessment in reading, writing, and mathematics are provided. Appendices A through G include an analysis of survey findings, questionnaire, membership list of the MCCDEC, math skills considered to be developmental by the community colleges, glossary of terminology used, best practices, and the Institute for Higher Education policy. Contains 54 references. (AS)

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ACCESS AND QUALITY

Improving the Performance of Massachusetts Community College Developmental Education Programs

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Executive Summary

Since 1989, the Board of Higher Education's report, *The Undergraduate Experience*, has served as a catalyst to the community colleges for the implementation of a series of assessment practices in reading, writing, and mathematics designed to assure correct placement for incoming first-year students. In 1996, in order to clarify the mission of assessment practices, support services, and developmental instruction in the state's community colleges, and to improve their effectiveness, the Executive Office of the Massachusetts Community Colleges established the Massachusetts Community College Developmental Education Committee (MCCDEC). The committee was charged with identifying current practices and developing comparable models of assessment and developmental education that would be recommended for implementation at the community colleges. In addition, it was the intention of the Executive Office to have the work of the MCCDEC communicated to secondary schools to help ensure coordination across education levels. As a further benefit, developmental education at the community colleges would be improved as the colleges shared information with each other and with secondary schools.

In the fall of 1997, the MCCDEC established subcommittees involving a total of 16 faculty, administrators, and staff—representing all of the state's 15 community colleges—in the areas of assessment and developmental reading, writing, and mathematics. Using this structure, the issues could be investigated and resolved in a unique bottom-up, data-driven process involving representatives of those in the state who were the most expert in the field of developmental education and the most committed to students.

This report's main findings are the result of a comprehensive survey administered to all of the community colleges. The survey has produced data of unprecedented detail concerning the developmental education practices of a state community college system. Assessment and placement policies are described, in addition to information regarding developmental education enrollments, curriculum development, instructional methods, support services, class size, faculty participation, and professional development. Further, a number of best practices are explained along with barriers preventing effective developmental education.

Using the extensive data collected from the survey and an analysis of the national context for the study—and relying on the informed expertise of committee members—25 detailed recommendations are proposed. Organized into four areas—assessment and placement, curriculum design and delivery, support services, and organizational structure—the recommendations taken in their entirety encompass a model for effective developmental education.

The report also includes specific recommendations for assessment in reading, writing, and mathematics. While the community colleges teach developmental reading, writing, and mathematics with different numbers of course levels using various methods, they agree on what is considered college-level material in each area. The recommendations, then, focus on the differentiation of college-level from developmental-level skills.

This project has, for the first time in the history of Massachusetts community colleges, provided criteria for assessment in the areas of developmental reading, writing, and mathematics, in addition to providing a clear set of frameworks for the assessment of all students, and for the instruction, advisement, and support of those who need extra academic help. By conveying these criteria and frameworks statewide, this project will begin to establish a network of communication among secondary and postsecondary institutions that will make the transition to postsecondary education smoother for a whole category of students who might not otherwise be able to continue their education.

Please visit the MCCDEC Web site at **www.necc.mass.edu/mccdec** for more information on this project.

Introduction

The Purpose of this Project

Over the past several years, faculty, administrators, and staff at community colleges across Massachusetts have responded to the Board of Higher Education's report, *The Undergraduate Experience* (1989), by implementing a series of assessment practices in reading, writing, and mathematics to assure correct placement for incoming first-year students in their respective colleges. These assessment practices were intended to place students so that any developmental needs identified as prerequisite to specific college-level courses would be met before the student enrolled in these courses. In this way, retention of first-year students would be improved, and more students would be able to continue and complete degree programs.

However, as appropriate assessment and placement policies were developed to suit the needs of students at the individual colleges, these policies became difficult to compare and to understand for those outside a particular college. Similarly, the curricula into which underprepared students were placed had also become difficult to compare among institutions in terms of their goals and outcomes.

Massachusetts Community College Developmental Education Committee

To clarify the mission of assessment practices, support services, and developmental instruction in the state's community colleges, and to improve their effectiveness, the Executive Office of the Massachusetts Community Colleges established the Massachusetts Community College Developmental Education Committee (MCCDEC), a committee of administrators and faculty from the 15 community colleges. This committee undertook the task of identifying current practices and developing comparable models of assessment and developmental education that would be recommended for implementation at all of the community colleges. In addition, it was the intention of the Executive Office to have the work of the MCCDEC communicated to secondary schools in the state to assure that, through future changes in secondary school instruction, the number of secondary students requiring developmental instruction at the community colleges would be reduced. As a further benefit, developmental education at the community

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colleges would be improved as the colleges shared information and proposed recommendations for improving developmental instruction and accompanying support services.

This report describes the findings of a survey initiated by the MCCDEC with the support of a Board of Higher Education Performance Improvement Grant and the community college presidents. The report outlines a set of recommendations for a model of effective assessment and developmental education that take into account the national context in which best practices are being developed.

A Grass-Roots Approach

In the fall of 1997, the MCCDEC set up subcommittees to begin the task of clarifying developmental education and assessment in the state's community colleges by surveying current practices. Sixteen faculty, administrators, and staff in the areas of assessment and developmental reading, writing, and mathematics were chosen to be members of these subcommittees (see Appendix C), representing all of the state's 15 community colleges. With this structure, the issues could be investigated and resolved in a unique bottom-up, data-driven process involving representatives of those in the state who were the most expert in the field of developmental education and the most committed to students.

The MCCDEC chose a full-time Project Manager, who convened and chaired meetings of the subcommittees. The Institute for Higher Education Policy, a non-profit, non-partisan research organization, was hired to help the subcommittees devise a survey instrument to collect data and construct a method to analyze the data once collected (see Appendix G). In addition, The Institute was asked to edit the final draft of the report detailing the MCCDEC's work.

The subcommittees, with the approval of the MCCDEC, produced a survey (see Appendices A and B) to collect data on all aspects of developmental education. The time period for which the data were collected is July 1, 1996 to June 30, 1997. To promote clarity of understanding and focus for the survey, the following definition of developmental education was agreed upon by all committee members:

> *Developmental Education consists of those courses and support services in the basic academic skills which address the needs of a diverse group of underprepared students. Through assessment and instruction, students are provided a firm foundation for success in college-level academics. Essential to this foundation are reading, writing, mathematics, academic acculturation, critical thinking, and study skills.*

The subcommittees then analyzed the data to produce recommendations for a model of effective developmental education, organized around four themes—assessment and placement, curriculum design and delivery, support services, and organizational structure—in addition to addressing best practices and barriers to an effective developmental education program. These themes are incorporated throughout the report.

This project has produced data of unprecedented detail concerning the practices of a state community college system. Equally as important, the process has strongly contributed to the professional development of committee members and resulted in a community of experts in the field of developmental education. It is hoped that this community of experts will continue to meet in each developmental area to improve instruction and, through the Web site connected to this report, expand to other developmental educators throughout the country who are interested in evaluating and researching those best practices in developmental education.

This project has, for the first time in the history of Massachusetts community colleges, provided criteria for assessment in the areas of developmental reading, writing, and mathematics. It also has provided a clear set of frameworks for the assessment of all students, and for the instruction, advisement, and support of those who need extra academic help. By conveying these definitions and frameworks statewide to the Board of Higher Education, the Department of Education, community college faculty and staff, and secondary school superintendents, this project will begin to establish a network of communication among secondary and postsecondary institutions that will make the transition to postsecondary education smoother for many students who might not otherwise be able to continue their education.

National Context for the Study

In recent years, developmental education has received increased scrutiny from policymakers and the public in many states. Indeed, most recently, the decision of the City University of New York to phase out developmental education at its four-year institutions has received national attention. In January 1998, the State Higher Education Executive Officers (SHEEO) published the results of a survey of all 50 states which provides national information regarding developmental education as well as policies on student admissions and preparation. Similarly, the National Center for Education Statistics (NCES) published a report in October 1996 which painted a comprehensive picture of developmental education activities in higher education.

The NCES report provides a snapshot of the major trends in developmental education. The major findings of the study indicated that:

- About three-quarters of higher education institutions that enrolled freshmen offered at least one developmental reading, writing, or mathematics course in Fall 1995. *All* public two-year institutions offered developmental education courses.
- Twenty-nine percent of first-time freshmen enrolled in at least one developmental reading, writing, or mathematics course in Fall 1995.
- Twenty-five percent of institutions offering developmental reading, writing, or mathematics also offered developmental education courses in other subjects.
- In general, about three-quarters of the students enrolled in developmental education courses pass or successfully complete those courses.
- About three-quarters of institutions require students to enroll in developmental education courses based on entry level testing.
- About two-thirds of institutions placed some restrictions on the regular academic courses that students could take while they were enrolled in developmental education courses.

Typically, developmental education is increasingly being concentrated at the community college level. For instance, Arizona prohibits developmental education courses at public universities, and Virginia has a statute which directs senior institutions to make arrangements with community colleges for any developmental education needed by students they accept for admission. Massachusetts has limited developmental education enrollments in four-year institutions.

While it is clear that developmental education is an integral and important component of higher education in this country, what is known about best practices in developmental education, and how much is understood about its effectiveness? Information drawn from several sources provides some insights into national trends in practices and policies.

Required Entry Level Testing and Mandatory Placement

In several states, including Arkansas, Illinois, and Oklahoma, students are required to take developmental education courses if assessment indicates a lack of preparation. Virginia has a state policy that recommends mandatory assessment in reading, writing, and mathematics, and placement of skill-deficient students in developmental education classes. Texas provides a good example with its five-part system for delivering developmental course work and learning assistance—called the Texas Academic Skills Program (TASP). The five parts include: Testing, Advising, Placement, Developmental Education, and Evaluation. The TASP test is administered to *all* students; test results are used to advise students, and to place them into appropriate developmental course work, if needed.

Common Placement Guidelines

Ohio is providing national leadership in establishing a consistent set of college-level expectations in mathematics, reading, and writing. In addition, all Ohio public higher education institutions are encouraged to establish common placement guidelines and a range of cutoff scores for placement in developmental education. The Maryland community colleges have begun developing consistent standards and practices for developmental education, which include, among other things, tests that are used to identify and place students while determining cut-off scores. It is expected that these guidelines will be completed within the

next two years. Also, a statewide group studying developmental education in Maryland has recommended that performance outcomes in each academic area be def ned at two levels: the level that certifies meeting high school graduation requirements, and the level .hat certifies college readiness, particularly in mathematics and English. The state of South Carolina takes this issue of common placement a step further by calling for a common system of developmental education courses including: (1) common course competencies, (2) common course numbering, (3) common course syllabi, (4) common course evaluation system for student performance, and (5) a common statewide tracking system for determining satisfactory progress in developmental education.

Flexible Delivery of Instruction

Several states promote a wide variety of instructional approaches which reflect differing learning styles of students. Technology mediated learning strategies are being used in more and more institutions in states such as Alaska, California, Colorado, Maryland, and Texas. A good example of innovative delivery of developmental education is found in Hawaii where at-risk and other students are required to take 18 credits together, including a foundation course, and to engage in service learning. Dubbed the *Rainbow Advantage Program*, the initiative also offers dozens of services, including weekly meetings and tutoring sessions.

Communication between Developmental Education Faculty and Other Faculty

Colleges and universities in Illinois provide good examples of communication between developmental education faculty and faculty who teach in other academic departments. Several institutions use faculty in the mathematics and English departments to teach both developmental education courses and regular college level courses so that there is a continual feedback about student progress. One institution has developed a "learning communities" model to link developmental reading and writing courses with selected general education courses, in a sort of "bridge" program between developmental and collegiate-level work. Special learning communities in the general education courses in the fields of anthropology, sociology, theater, music and speech offer the following advantages: (1) students have the opportunity to develop closer study relationships with each other and with the instructors, (2) a learning environment is created which integrates skill development and content knowledge and content literacy strategies, (3) students can enroll in general

education courses which otherwise would have been prohibited, and (4) support from reading and writing instructors is available to supplement the work of the general education instructor.

Communication between High Schools and Colleges

There is increasing concern for improving communication between high schools and colleges. About thirty states have established some kind of high school feedback mechanism. For example, Ohio supports faculty from the K-12 and higher education communities to collaborate in defining and articulating what entering college freshmen should know and be able to do in order to be considered fully prepared for college work. The K-12 and higher education communities in Ohio are being encouraged to work together—and work with parents—to begin developing and applying a continuum of assessment and intervention strategies so that educators can pinpoint problems when they first occur. Maryland produces the *Student Outcomes and Achievement Report*, which is sent to all high school principals and combines both college and high school performance information for all students attending public higher education institutions. Oklahoma's *Collegiate Success Profiles* is a series of feedback reports provided to high schools on how each school performs over a five-year period and how its graduates persisted in or graduated from college and their academic performance.

Program Evaluation

To assess the effectiveness of a developmental education program, several fundamental questions need to be addressed: (1) Do students successfully complete developmental education? (2) Do students move from developmental education to college-level courses? (3) Are developmental education students eventually completing college-level courses? (4) Are developmental education students persisting and reaching their academic goals? Unfortunately, research into the effectiveness of developmental education programs has been sporadic, typically underfunded, and often inconclusive. For instance, a study of 116 two- and four-year institutions revealed that only a small percentage conducted any systematic evaluation of their developmental education programs. However, there are some notable research efforts coming from the National Association for Remedial/Developmental Studies in Postsecondary Education and the National Center for Developmental Education.

In addition to statewide efforts to improve developmental education, myriad studies are performed at individual higher education institutions across the country. A number of these studies have identified specific program characteristics which correlate highly with student success. These program characteristics include the following:

- The more comprehensive a developmental education program is, the more likely it is that students will be successful in college-level work.
- A full-time director and a committed staff provided with ongoing training is associated with a successful developmental education program.
- Developmental education programs which provide comprehensive support services and are institutionalized within the academic mainstream display success in preparing students for college-level work.
- Active and continuous intervention by counselors and other personnel with underprepared students increases the probability of students staying in developmental education programs and achieving success in subsequent college-level courses.

In addition to the educational benefits of developmental education, the economic benefits are also recognized nationally as important. The cost of failure is enormous for the student, the institution, and the state. The cost to the student is additional tuition (often paid through student loans), additional time to obtain the degree, the opportunity cost of delay in the start of a career, and the opportunity cost of being locked out of higher paying jobs. The cost to the institution includes administration and support for failing students, students repeating courses, increased financial aid, and the intangible harm to the institution's reputation that can come from high student failure rates. The cost to the state reflects the financial support of students who drop out, reimbursements for students repeating courses, and the cost of facilities and support services. National studies indicate that there is actual economic value in turning a failing student into a successful one. Using cost-benefit analysis, the inevitable conclusion is that improving developmental education is wise public policy.

Recommendations for a Model of Effective Developmental Education

After collecting data on the assessment and developmental education practices of the 15 community colleges, the members of the subcommittees analyzed the data, reviewed current research, and drew upon their own collective experience with developmental education and assessment to devise the following recommendations for building an effective program. Because these recommendations are based largely on the experience of developmental educators at the community colleges, they represent a plan for the future that should be evaluated by each college for its appropriateness and effectiveness. It is a working model that the colleges can modify as they continue to learn together the best methods for serving underprepared students.

Since the goal of developmental education is to ensure the success of underprepared students, the purpose of each recommendation can be best understood in relation to how it serves this goal. Underprepared students come to community colleges with different combinations of skills and deficits that need to be accurately assessed. Their ways of learning may be unique, or they may need to learn academic skills. In addition, they may be unaware of how to succeed in a college environment or how to get the best academic advising or career counseling services. Consequently, underprepared students need comprehensive assessment, intensive guidance and advising, and a highly structured approach to instruction as they begin their college careers. They also need a planned transitional sequence of advisement that will teach them to become independent in their academic and occupational choices, and a transitional sequence of instruction that will teach them how to participate actively and independently in their own learning at the college level. Finally, underprepared students need a learning environment that respects and motivates them as they make a difficult and relatively rapid transition to college level study.

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Assessment and Placement

Underprepared students must be assessed in a flexible and comprehensive way to make sure that their particular needs are correctly determined. Once assessment is completed, placement must be geared to the performance levels seen in the assessment and the requirements of individual courses. Registration must be strictly monitored so that students truly get the services that assessment has shown they need. Otherwise, they may do poorly or fail because they were wrongly placed.

Comparability of assessment and placement practices throughout the community colleges will assure that underprepared students can transfer smoothly both into and out of the colleges. Finally, students must clearly understand assessment and placement policies and the reasoning behind them so that their motivation to continue is not undermined by these policies. The following recommendations are offered to achieve these objectives.

A. A mandatory comprehensive assessment of reading, writing, and mathematics should be required of all incoming students with waivers determined by institutional policy. A comprehensive assessment may also include assessments of learning styles, study skills and career interests.

B. There should be reasonable re-test policies.

C. Placement into courses appropriate to students' performance levels should be required.

D. Institutions should establish a course *and* skill prerequisite structure to help match student preparation with course expectations. Course placement requirements, both pre- and co-requisites, should be monitored at registration.

E. Administration and management of assessment programs should remain under the autonomous control of individual colleges. Valid and reliable tests connected with course competencies should be a shared objective throughout the community college system. The recommendations for assessment in reading, writing, and mathematics should provide a benchmark for comparability (see pp. 21-26, **Specific Recommendations for Assessment**).

F. Assessment and placement policies should be disseminated through formal institutional policy statements, college catalogue entries, and orientation brochures that clearly explain to students the purposes, content, scoring procedures, and placement implications of the assessment programs.

Curriculum Design and Delivery

The following curricular recommendations stress the need for a highly structured, tailored, transitional approach to instruction. Learning styles and student needs must be carefully monitored in the classroom, and individualized support services will assure that the varying learning needs of underprepared students are taken into account. Exit criteria, monitoring of simultaneous enrollment, and outcomes research must assure that the instructional sequence will be effective and skills will be mastered, while bridge programs/courses that allow students to make a smooth transition to college-level courses should promote student independence and survival outside the developmental program.

Communication between the faculty in developmental education and college-level programs will ensure that instruction in the various areas is well integrated and the sequence of instruction remains coherent from developmental to college-level courses. Connections to secondary institutions, adult literacy programs, and other community colleges will facilitate smooth transition into community college programs, while connections to training programs, state colleges, and universities will ensure equally smooth transitions out of the community colleges. The following recommendations, then, stress connection with other programs and institutions as much as careful structuring in the design of developmental education curricula.

A. A comprehensive developmental curriculum, with goals and objectives clearly defined, should exist to address students' academic needs. This curriculum should enable students to work independently and in groups.

B. Flexible delivery of curriculum should be available to ensure that differing learning styles and student needs are addressed.

C. Exit criteria should be articulated in order to test students' achievement of course objectives.

D. Whenever appropriate, instructional technology should be part of the developmental curriculum.

E. Colleges should not exceed collective bargaining maximums on class size for developmental courses.

F. Colleges should integrate comprehensive student-centered support services into developmental education programs.

G. Colleges should conduct continuous academic outcomes research to ensure improved intervention strategies.

H. Students who are in developmental classes should not simultaneously be enrolled in college-level classes dependent upon those skills, except where there are special curricular approaches and academic support to help underprepared students.

I. Bridge programs/courses to provide support for students moving to college-level courses should be offered.

J. To facilitate the transition between developmental and college-level study for underprepared students, an ongoing dialogue should be maintained between the faculty in developmental education and the faculty in college level courses.

K. There should be ongoing communication between community college programs and the secondary institutions and adult literacy programs that feed them, and the colleges, universities, and training programs that accept students who have completed developmental education programs.

Support Services

As they begin their college courses, underprepared students require individualized help both in advisement and academics. Intrusive advising, by identifying and solving problems early as they arise, assures that students do not fail or withdraw from courses during their first few semesters and are prepared to perform adequately in college-level courses. Tutorial labs, supplemental instruction, and effective innovative instructional strategies can all contribute to the individualized out-of-classroom instruction that underprepared learners need at the beginning of their college careers. They should also help to develop the independence in learning that underprepared students must attain. Finally, advising and counseling that lead students to independence and maturity in decision making promote later success in academic life and the workplace. These recommendations will help to ensure effective support services.

Colleges should provide the following support services to ensure student success using an integrated approach:

- Monitoring of student success through intrusive advising with appropriate "early and often" intervention.

- Tutorial labs and supplemental instruction including the use of peer and professional tutors, and other innovative strategies such as collaborative learning, learning communities, and appropriate instructional technology. These forms of instruction should lead students to more autonomy in their learning.
- Career counseling and academic advising that lead students to more informed and independent choices with regard to their education and occupations.

Organizational Structure

There was a general feeling among the members of the subcommittee that the value of developmental education at the colleges needs to be emphasized and promoted. The colleges also must emphasize the value of underprepared students, who, when given appropriate instruction and guidance, can often be some of the most successful students academically, and can contribute to their communities. Furthermore, in its focus on both cognitive and affective factors in student success, the field of developmental education can inform all educators in their attempts to make their instruction effective; faculty and administrators need to be made aware of this in their professional development. Another way to make faculty aware of the requirements and benefits of developmental education is to have them teach developmental courses. Faculty should be encouraged to do so, and trained and supported by their colleges.

Developmental education often does not receive the support that it needs, even though it is an area that, due to its mission to work with the neediest students and provide time-consuming individualized instruction, requires the greatest amount of experienced staffing and support. To plan and integrate developmental education successfully, full-time faculty and staff are needed and should be made available for these tasks.

Underprepared students are not adequately served when developmental education is done "on the fly." The organization and evaluation of developmental education programs must be carefully considered, since underprepared students need a highly structured curricular sequence that is effective in the fairly short period of one or two semesters. These recommendations highlight the organizational structure that developmental education programs must have:

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A. The value of developmental education should be reflected in the mission and planning priorities of the college.

B. This value should be demonstrated through professional development that enhances skills and promotes a campus-wide awareness and appreciation of developmental education.

C. Colleges should encourage interested faculty and professional staff to participate in developmental education courses. Those who elect to do so must be supported as they develop expertise in the best practices of developmental education.

D. Colleges should fund appropriate levels of full-time faculty in developmental instruction.

E. Colleges should fund appropriate levels of professional staffing for delivery of academic support services.

F. Developmental education should be organized to ensure communication and cooperation among the program components.

G. Colleges should continuously evaluate developmental education in at least the following areas: (1) program goals, (2) course objectives, (3) exit criteria, (4) course completion, and (5) success in subsequent courses. *

Areas of Continuing Concern

It should be noted that there were several important issues that the subcommittee could not address within the scope of this project. Among these are the impact of governmental regulations (such as welfare-to-work requirements) on the fulfillment of these recommendations and the impact of the Massachusetts Comprehensive Assessment System (MCAS) testing in secondary schools on developmental education programs. Additionally, the question of how students who speak English as a Second Language should be served in such programs requires further examination. Finally, the issue of cutoffs for entry into community college developmental education programs and the entry or instruction of adult literacy students have not been addressed.

*The National Association for Developmental Education (NADE) publication on the evaluation of Developmental Course Programs (1995) contains a complete evaluation framework that will assure every aspect of developmental education will be taken into account.

Specific Recommendations for Assessment: Reading, Writing, and Mathematics

The MCCDEC survey illustrates that Massachusetts community colleges teach developmental reading, writing, and mathematics in diverse ways, tailored to the needs of their diverse student populations. The Committee recognizes that this diversity is necessary to serve underprepared students adequately and for this reason needs to be preserved. Since assessment must be based on the needs of the instructional programs at the various colleges, any recommendations for assessment must also take into account the varying needs of the colleges. It is in this spirit that the following specific recommendations are given, not as absolute mandates, but as guidelines for comparability that will need to be revised as further research and evaluation dictates.

While the community colleges teach developmental reading, writing, and mathematics with different numbers of course levels using various methods, they agree on what is considered college-level material in each area. The following recommendations, then, focus on the differentiation of college-level from developmental-level skills. Competency-based recommendations are given to distinguish these levels, as well as current ranges of cutoff scores for the ETS Accuplacer CPT, the assessment battery that is currently most widely used in the community colleges. ***It is strongly recommended that colleges that use other tests develop comparable cutoffs based on research and/or the competencies presented below.***

The committee recognizes that while standardized assessments like the CPT are useful screening devices to help identify students who are unlikely to succeed in college-level courses, they are not always true indicators of students' abilities when interpreted narrowly and used in isolation. One-time testing with a set cutoff on a standardized assessment test is an unreliable procedure for placement, given that such scores have standard errors of measurement that could place the same student one day above the cutoff and the next day below the cutoff. Thus, the MCCDEC concurs with the *Implementation Guidelines of The Undergraduate Experience* (1991) when it states that institutions should "build into their placement process the opportunity

for appeal and retest." In addition to a flexible retesting mechanism, the placement process should include a review of high school transcripts and other academic background, consideration of SAT scores, and/or diagnostic testing at the developmental course level that could include performance-based testing (such as, in the case of reading, having students read excerpts from college-level texts and summarize the passages).

Recommendations for Assessment in Reading

Reading Competencies Required for College-Level Studies

It is difficult to propose a set of skills defining college-level competency in reading, since particular reading skills such as summarizing and drawing conclusions are not, in and of themselves, college-level. Rather, it is the reading level in combination with the type of reading that is relevant. Summarizing a text written at 10th grade level is more difficult than summarizing one at 8th grade level. Similarly, summarizing a science article with many technical terms is more difficult than summarizing a narrative. Any assessment process utilizing reading competencies must be sensitive to these concerns. It should also be noted that exit criteria from developmental reading may include higher-order skills that are not included in the list below. It is with these caveats in mind that the following recommendation for reading competencies is given.

It is recommended that the following competencies be used as cutoffs in reading for college-level studies: To enter a graduation-credit course, students, using a variety of reading materials written at or above a 10th grade level, should be able to:

- ***decode and understand the meaning of new words drawing on appropriate strategies;***
- ***comprehend and differentiate main and subordinate ideas;***
- ***utilize organizational patterns of paragraphs, essays, and book chapters to assist comprehension;***
- ***analyze and evaluate the relationship between audience, purpose, and tone;***
- ***summarize and explain in their own words what has been read;***
- ***differentiate fact from opinion;***
- ***make inferences and provide support from the text; and***
- ***draw conclusions from stated and implied information.***

CPT Reading Test Cutoff Scores for College-Level Reading

Ten of the 15 community colleges use the CPT Reading test for assessment, and their cutoffs for college-level reading fall within a range of 16 points.

As the Educational Testing Service (ETS) notes, a CPT cutoff should be expressed as a range of scores that takes into account the standard error of measurement—approximately +/- 8 points for the Reading assessment. The range of CPT cutoff scores currently in use by the community colleges that was identified by the survey is 60-76 (raw score). This is the range for a score of 68 on the test, +/- the standard error of measurement of 8 points. Since it is based on the experience of 10 community colleges, this range should provide an appropriate minimum and maximum score for placement into developmental reading courses. That is, students who score below this range will be placed into developmental reading courses.

It is recommended that the range of 60-76 (raw score) on the CPT Reading Test be used for college-level cutoffs in reading at the community colleges that use the CPT, and that for other colleges that use standardized tests, crosswalks should be established from these tests to the above range on the CPT.

Recommendations for Assessment in Writing

Writing Competencies Required for College-Level Studies

Only seven of the community colleges use the CPT Sentence Skills test as an assessment instrument for writing, and three of these schools also use a holistically scored writing sample for many or all of their students. At the remaining eight community colleges, the writing sample is the ultimate means for making placements into developmental writing courses. For this reason, it is not productive to give cutoff scores for a writing assessment based on the CPT Sentence Skills Test. Instead, writing competency should be assessed with a holistically scored writing sample.

It is recommended that the following competency-based assessment be used for writing:

To enter a graduation-credit writing course, students should be able to compose a draft of an impromptu essay focused to develop a specific point or thesis in response to a prompt. Within this essay, writers will:

- ***sustain the thesis with supporting ideas organized in an attempt to produce logical paragraphs;***
- ***amplify general statements with specific details and observations; and***
- ***use English comprehensibly and appropriately, with only occasional errors in sentence structure, standard usage, punctuation, and spelling.***

Students whose writing samples do not achieve these standards should be directed to the appropriate developmental writing course(s).

Colleges using the CPT and other reading tests have recognized the important connection between reading and writing. For this reason, some colleges also use reading scores as significant information for making writing course placements.

To complement writing samples, it is also recommended that colleges use reading scores as significant information for making writing course placements.

Recommendations for Assessment in Mathematics

Mathematical Competencies Required for College-Level Studies

A task force of the subcommittee on assessment and developmental instruction devised a list of 131 skills considered to be developmental mathematical competencies. This list forms the basis of the competency-based recommendation below. The full range of these competencies, together with an indication of how the list was devised, is contained in Appendix D.

It is recommended that the following competencies be considered developmental and should be mastered before a graduation-credit course in mathematics can be taken: competencies in arithmetic starting at

operations on whole numbers, leading up to competencies in algebra to the level of solving quadratic equations. A sampling of such competencies follows.

<u>*Basic Mathematical Skills*</u> (together with real-life applications of some skills)

operations on whole numbers

fractions and decimals

percentages

ratio and proportion

basic calculator usage

geometry

<u>*Algebraic Skills*</u> (together with real-life applications of some skills)

operations on integers and/or rational numbers

variable expressions

linear equations

polynomials

factoring

algebraic fractions

radicals and exponents

graphing linear equations and inequalities

graphing systems of linear equations

quadratic functions

CPT Math Test Cutoff Scores for College-Level Math

Eleven of the community colleges use one or more of the CPT Arithmetic, Elementary Algebra, or College Level Math tests for assessment of mathematical proficiency. The range of CPT cutoff scores for college-level math currently in use by six of these community colleges is 82-90 (raw score on the Elementary Algebra test). This range should provide an appropriate minimum and maximum score for placement into

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developmental level math courses. That is, students who score below this range will be placed into developmental math courses.

It is recommended that the range of 82-90 (raw score) on the Elementary Algebra Test be used for college-level cutoffs in mathematics at the community colleges that use the CPT, and that for other colleges that use standardized tests, crosswalks should be established from these tests to this range on the CPT.

Appendices

Appendix A: Analysis of Survey Findings

Appendix B: The Survey Questionnaire

Appendix C: Membership of the MCCDEC

Appendix D: Math Skills Considered to be Developmental by the Community Colleges

Appendix E: Glossary of Terminology Used

Appendix F: Best Practices

Appendix G: The Institute for Higher Education Policy

Appendix A

Analysis of Survey Findings

The survey produced a wide range of important findings about developmental education practices and policies at each of the Massachusetts community colleges. The most important of these findings follow.

Assessment and Placement

Assessment Policies

Although assessment policies were developed independently at each of the 15 community colleges, the competencies and test cutoff scores used (for the ETS Accuplacer-CPT tests, the most commonly used objective tests) were reasonably comparable to each other. Ten colleges currently use the CPT Reading assessment, while 11 colleges use one or more of the CPT Arithmetic, Elementary Algebra, or College Level Math tests to assess mathematical proficiency. In contrast, only seven of the community colleges use the CPT Sentence Skills test to assess writing, and three of the seven supplement it with a holistically scored writing sample. The other eight colleges use a writing sample as the ultimate means of assessing writing skills.

Placement Policies

In 13 of the 15 colleges, placement into developmental courses after assessment is mandatory, although there are reasonable exceptions made to this policy. For example, 11 colleges exempt students with prior college credit. In addition, seven colleges allow retaking of a placement test, with some restrictions.

Curriculum Design and Delivery/Support Services

Percentages of Developmental Education Enrollment at the Community Colleges

About 29% of the total enrollments at the 15 community colleges are in courses in developmental curricula. These curricula typically involve one or more reading, writing, and mathematics courses. Almost half of the developmental courses are math courses. Another 40% are divided between reading and writing courses. The remaining courses are developmental study skills, academic orientation, or content courses. The developmental content courses include courses in chemistry, biology, accounting, health, and computers.

Curriculum Development and Exit Criteria

In 13 of the 15 colleges, curriculum is developed by the department or the division, and exit criteria from developmental courses involve grades. The criterion for passing is identified by each institution (for example, as a P or a C). Other colleges use one or more CPT tests, competencies, or portfolios as exit tests, usually in combination with other methods of evaluation.

Instructional Methods/ Support Services

There are many similarities in the instructional methods used in developmental education in the Massachusetts community colleges. These include: individualized, self-paced courses; collaborative learning; study skills workshops; computer-aided instruction; video tutorials; interactive multimedia; intrusive advising; peer tutoring; and distance learning. Other promising techniques unique to individual colleges are supplemental instruction, paired courses, learning communities, and linked reading/writing sections.

Simultaneous Enrollment in Graduation-Credit Courses

At all colleges, students may take some graduation-credit courses outside of developmental courses if the courses do not require previous knowledge of the developmental skills the students are currently studying.

Class Size

Developmental courses generally have stated maximum class sizes of from 20 to 30 students. Math classes tend to have higher class sizes than reading and writing classes. Where there are two or more levels of courses in an area (such as two levels of developmental reading), the highest level may have a larger maximum class size. In most instances, average class sizes are smaller than the stated maximum.

Organizational Structure

Part-Time vs. Full-Time Faculty

Sixty-two percent of developmental sections were taught by part-time faculty in 1996-1997. At several colleges, all sections of developmental reading are taught by adjunct faculty.

Training for Faculty in Developmental Education

Most colleges do not offer prior training in the theory and practice of developmental education for faculty beginning to teach developmental education courses. A few colleges may offer professional development funds or opportunities (workshops, seminars, course work, and special programs) to both full- and part-time faculty for in-service training.

Evaluation of Developmental Education Programs

Most colleges use student evaluation or student performance (either completion rates of courses or later academic performance) as a means to evaluate their developmental education programs. Half use instructor evaluation, and very few colleges use college-wide or external evaluation.

Best Practices

The developmental programs at the various community colleges showed a lively diversity in effective practices and services offered to developmental students. Many of the support services and classroom practices cited are considered to be innovative in the field of developmental education, including

collaborative learning, learning communities, and intrusive advising. Here are some of the best practices compiled from the survey and the MCCDEC's deliberations:

Assessment and Placement

- a program that assesses students and tracks their progress throughout their college careers, using intrusive advising
- collaborative programs to provide developmental education services in community colleges and nearby state colleges
- outcomes assessment

Curriculum Design and Delivery

- linked reading and writing courses
- paired courses
- journals in writing and math
- use of computer labs to teach word processing, editing, and revision
- integration of math study skills into math courses

Support Services

- supplemental instruction
- peer tutors in the classroom
- computer-aided instruction
- peer mentors

Organizational Structure

- close connection and collaboration between developmental education and assessment
- collaborative teaching with content faculty members

At the First Annual Teaching and Learning Conferences planned by the MCCDEC in April of 1997, and the Second Annual Conference planned by the Teaching and Learning Committee in April of 1998, best practices currently used in Massachusetts community colleges were presented by faculty, staff, and administrators. Partial lists of the presentation topics are given in Appendix F.

Barriers to Providing Effective Developmental Education

It must be noted that barriers are a matter of individual perception, and there were no consistent guidelines concerning whose perceptions were recorded. Nonetheless, committee members agreed that barriers in staffing, curricular policy, resources, and preparedness of students are common concerns. The most important of these, gleaned from the survey, are cited below.

Staffing

- limited training and/or interest in teaching developmental education among some faculty
- coordination or communication gaps between developmental educators and other faculty, staff, and administrators

Curricular Policy

- inadequate enforcement of placement policies
- difficulties associated with simultaneous enrollment
- inadequate curriculum to address actual student needs

Resources

- lack of funding
- lack of space
- lack of equipment

Preparedness of students

- lack of preparation in academics
- lack of orientation to college life and the requirements for academic success

Appendix B

The Survey Questionnaire

MASSACHUSETTS COMMUNITY COLLEGES SURVEY ON DEVELOPMENTAL EDUCATION

Purpose of the Survey

This survey is part of a study funded by the Board of Higher Education Performance Enhancement Grant titled, "Access and Quality: Improving the Performance of Community College Developmental Education Programs." The goal of the study is to improve access, retention and quality of assessment and developmental education in the Massachusetts Community College system. The purpose of this survey is to gain an understanding of several components of the developmental education program at your institution. Of particular importance are the instructional practices and assessment procedures of developmental education in reading, writing and mathematics.

Definition of Developmental Education

Developmental Education consists of those courses and support services in the basic academic skills which address the needs of a diverse group of underprepared students. Through assessment and instruction, students are provided a firm foundation for success in college-level academics. Essential to this foundation are reading, writing, mathematics, academic acculturation, critical thinking, and study skills.

Note: *Unless indicated otherwise, the time period from July 1, 1996 to June 30, 1997 should be used to answer the following questions. Also, if any of the information is contained in a publication, you may attach a copy in lieu of writing an answer. Use additional sheets if necessary to complete the questions*

Name of Institution: _____

Person Responding: Name _____

Title _____

Telephone _____

Fax _____

e-mail _____

Who Participates in Developmental Education?

1. *Total* credit hours at your institution (including developmental education students).

   _____

2. Does your institution have written policies, standards, or guidelines that are used for placement of academically underprepared students?

   _____ Yes (Please attach a copy)
   _____ No

3. Please describe below the tests and instruments (including writing samples) that are used at your institutions to identify and place underprepared students in developmental courses.

Test Name	Scores used for placement *(identify as raw or scaled)*	Course Name

4. Please describe how the scoring systems and criteria for the placement of underprepared students in developmental education courses and activities (i.e., locally or nationally developed norms, specific deficiencies or competencies, grade-level equivalencies).

	Scoring System	Criteria
Local		
National		
Other		

5. Are all groups of entering students assessed?

_____ Yes
_____ No

If no, which groups of students are not assessed (i.e., students taking a certain number of credits, students enrolling in particular classes or programs, day/division of continuing education, students with prior college credit, non-degree students, students with disabilities)?

	Certain # of Credits	Particular Courses or Programs	Day/ DCE	Prior College Credit	No Degree	Disabilities
Not Assessed						

6. Is placement of students mandated into required developmental classes by institutional policy?

_____ Yes
_____ No

If no, please describe how students are placed developmental education courses?

Exceptions:

7. Are the students charged for assessment?

___ Yes. Please indicate how much _____

___ No

What are the Procedures for Developmental Education?

8. How is the developmental education curriculum developed at your institution? Check all that apply.

_____ Developed by Departments/Divisions
_____ Developed by individual faculty/staff
_____ Developed by administrators
_____ Developed to respond to a specific need
_____ Research based (please specify)_____

9. What policies does your institution have to determine when students can leave developmental courses or programs (such as completing a course or program sequence or passing an exit test)?

Course	CPT	Course Grade	Competencies	Portfolios	Other

10. Are there limitations on the number of times students may:

Retake a placement test?
_____ No
_____ Yes (Please explain) _____

_____

Retake a course?
_____ No
_____ Yes (Please explain) _____

_____

Retake an exit examination?
_____ No
_____ Yes (Please explain) _____

_____

11. Are students allowed to enroll in developmental education courses and college level courses at the same time?
_____ No
_____ Yes, with restrictions (specify)_____
_____ Yes, without restrictions

12. Please check the institutional organizational structure under which developmental education activities (courses, advising, tutoring, testing) are provided. Specific attention should be directed to the degree to which the activities are decentralized throughout the campus or centralized under one organizational unit.

Content Area	
Work Area	
Department	
Division	
Other	

Decentralized	
Centralized	
Other (Please explain below)	

13. What is the maximum and average class size for each area of developmental education courses (mathematics, writing, reading, etc.)?

Maximum Class Size _____ Average Class Size _____

What do Developmental Education Students Learn?

Please record the following information about developmental education courses and programs at your institution in the table on the next page. Attach additional sheets if necessary.

Activity. Identify the courses and other support activities at your institution for those students enrolled in developmental education courses. An activity can be a course of study, a skills lab, a learning center or tutoring.

Skill Area: Indicate the skill area(s) addressed by each activity using the following code:

1. Mathematical skills.
2. Writing and/or verbal communication skills.
3. Reading skills.
4. Critical thinking skills.
5. Academic acculturation skills.

Some activities may emphasize more than one skill area. For example, an English course may emphasize both reading and writing skills. Code both numbers in the table in these cases. No information is required about skill areas other than the above five.

Credit Type: Indicate whether students receive credit for the completion of the activity using the following code:

1. Degree credit. Counts toward the grade point average and an academic degree.
2. Institutional credit. Counts toward status as a full-time student or part-time student, but not toward a degree.
3. No credit.
4. No degree credit, but toward GPA.

Contact Hours: Indicate the number of student contact hours required per week in each activity.

TYPES OF DEVELOPMENTAL EDUCATION ACTIVITIES

Activity	Skill Area	Credit		Contact Hours	Counts Toward GPA
		# of Hours	1 - 4 Type		

14. What modes or techniques of instruction characterize teaching in your developmental classes? Please describe any special instructional strategies such as CAI or multimedia, self-paced instruction, required tutoring or academic counseling, extended class time, learning communities, or study groups.

Who Teaches Developmental Education Courses?

15A. Provide the <u>unduplicated</u> number of full-time faculty, part-time faculty, and professional staff who taught at least one developmental education course at your institution or participated in other developmental education activities during the 1996-1997 academic year.

Full-Time Faculty ____ Part-Time Faculty ____ Professional Staff ___

Course	FT	PT	PSUM	Other
English/Reading				
Mathematics				
Other (Please list)				

15B. Provide the unduplicated number of (entire college) FT _____ PT _____ PSUM _____ .

15C. Please indicate the total number of <u>sections</u> taught by full-time faculty

16. Do the faculty and staff who participate in developmental education at your institution receive *as a matter of policy* prior or in-service training (coursework or staff development) in the instructional techniques appropriate for their classes?

_____ Yes, in all cases
_____ Yes, in most cases
_____ Yes, in some cases
_____ No

Please explain any special circumstances.

How are Developmental Education Activities Evaluated?

17. What measures of success does the institution use to evaluate students' performance and the overall effectiveness of developmental education courses and activities? Check all that apply.

_____ Student evaluation of courses, activities or programs
_____ Instructor evaluation of courses, activities or programs
_____ Tabulation of student completion rates for courses, activities or programs
_____ Follow-up studies of the academic performance of remedial students
_____ College-wide and/or external evaluation of program effectiveness
_____ Other (specify) _____

18. If available, please provide information regarding the results of your evaluation efforts? In particular, how, if at all, have the results of your evaluation efforts affected curriculum development or institutional policy?

19. What are the barriers at your institution to providing effective developmental education?

20. Please explain, in some detail, those practices that have been especially effective.

Future Plans

21. If your institution is planning substantive changes to its developmental education program, please feel free to provide that information along with this completed survey.

Developmental Courses - June 1996 to July 1997

22. Reading, Writing, Math, and Other Developmental Courses
(attach course descriptions)

Course #	Number of Sections	Abbreviated Title	Credits	Head Count

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Appendix C

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Appendix D

Math Skills Considered to be Developmental by the Community Colleges

A task force of the subcommittee on instructional practices of MCCDEC was formed to investigate the range of topics taught in the Massachusetts Community Colleges' developmental math programs. This task force was composed of faculty members representing three of the colleges.

The task force generated a list of 131 skills traditionally taught in a developmental math program. This list was originally compiled by the University of Massachusetts and the Greater Boston Urban Collaborative. The list of skills was typed on a spreadsheet with each of the 15 community colleges represented. Copies were sent to each campus. Math designates were each asked to give the name and course number of their developmental math courses and then check off those skills taught in each course. The results were compiled onto a master spreadsheet, which is available at the MCCDEC Web site, **www.necc.mass.edu/mccdec**.

The task force felt that mastery of the 131 skills could provide a benchmark for entrance into a college-level math class. In addition, the members gave two recommendations:

Another statewide study needs to be funded to investigate the strands of commonality and institutional differences in developmental math programs. A minimum of two semesters would be needed to obtain the detailed curriculum information necessary to ascertain best practices.

A relationship between developmental math courses and the CPT cutoff scores is needed.

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Math Skills Considered to be Developmental by the Community Colleges

1 standard notation and place value
2 whole number operations
3 rounding
4 averaging
5 basic calculator use
6 exponents (whole numbers)
7 square roots
8 order of operations (whole numbers)
9 fraction operations
10 prime factorization
11 simplifying fractions
12 reciprocals
13 order of operations (fractions)
14 place value-decimals
15 decimal operations
16 rounding decimal numbers
17 conversion fractions-decimals
18 order of operation (decimals)
19 ratio and proportion
20 unit pricing
21 percentages
22 percent of increase/decrease
23 percent applications
24 simple interest
25 compound interest
26 denominate numbers
27 metric conversion
28 american measure conversions
29 conversions from metric/American
30 perimeter/circumference
31 area
32 volume
33 surface area
34 Pythagorean theorem
35 geometric applications
36 Arithmetic associative properties
37 arithmetic commutative properties
38 arithmetic distributive properties
39 tables
40 bar graphs
41 circle graphs
42 line graphs
43 mean, median, mode
44 signed numbers
45 order of operations (signed number)
46 scientific calculator use
47 inequality symbols
48 additive inverse
49 definition of a variable
50 exponents (positive integers)
51 simplifying square roots
52 evaluating algebraic expressions
53 simplifying algebraic expressions
54 distributive property in algebra
55 translation of verbal expressions
56 roster method of sets
57 set builder notation of sets
58 equations (x+a=b)
59 equations (ax=b)
60 equations (ax+b=c)
61 equations (ax+b=cx+d)
62 equations of grouping symbols
63 equations of fractional coefficients
64 translations of verbal sentences
65 application: value mixture
66 application: percent mixture
67 application: uniform motion
68 application: coin
69 application: geometry
70 linear inequalities
71 graph of linear inequalities
72 compound inequalities
73 absolute value equations
74 absolute value inequalities
75 lines and angles
76 intersecting lines
77 angles of a triangle
78 identifying points in a plane
79 order-pairs as a function
80 evaluating functions

Math Skills Considered to be Developmental by the Community Colleges (cont.)

81 graph of an equation y=mx+b
82 graph of an equation ax+by=c
83 slope
84 X and Y intercepts
85 point-slope formula
86 slope-intercept form
87 standard form of a line
88 find equation of line from graph
89 equation parallel/perpendicular line
90 solve linear system by graphing
91 solve linear system by substitution
92 solve linear system by addition
93 solve linear system by determinants
94 graph system of linear inequalities
95 multiplication of monomials
96 division of monomials
97 negative exponents
98 scientific notation
99 evaluate polynomial functions
100 multiplication of two binomials
101 special products (binomials)
102 division of polynomials
103 synthetic division
104 common factors
105 factoring by grouping
106 factoring trinomials (x^2+bx+c)
107 factoring trinomials (ax^2+bx+c)
108 factoring difference of two squares
109 factoring cubes
110 simplifying algebraic fractions
111 multiply/divide algebraic fractions
112 finding LCM algebraic fractions
113 add/subtract algebraic fractions
114 complex fractions (algebraic)
115 rational equations
116 similar triangles
117 literal equations
118 application: ratio and proportion
119 application: work
120 application: uniform motion
121 direct variation
122 inverse variation
123 joint variation
124 rational exponents
125 conversion radicals-rational exponents
126 operations on radicals
127 radical equations
128 quadratic equations-factoring
129 quadratic equations-square roots
130 quadratic equations-complete square
131 quadratic equations-formula

Appendix E

Glossary of Terminology Used

best practices — in education, those instructional, assessment and administrative practices that are considered to be the most effective in serving students and ensuring their success.

BHE — the Massachusetts Board of Higher Education.

bridge programs/courses — programs/courses meant to "bridge the gap" between developmental and college-level instruction. They combine college-level work with academic skills exercises. (Compare to **paired courses.**)

CAI — Computer Aided Instruction.

collaborative learning — an instructional methodology in which students work together to solve a problem or build knowledge. The dialogue may be facilitated by an instructor, but most learning occurs among peers. Participants learn as much from explaining their ideas to others as they do from listening to others' explanations.

competency — a skill or element of content to be mastered in a sequence of instruction.

continuous improvement — in education, the improvement of educational practices through constant evaluation and research.

co-requisite course — a course that must be taken at the same time as another course.

course objectives — specific statements of what a learner should be able to do after taking a course.

CPT — the Accuplacer Computerized Placement Test battery of the Educational Testing Service.

critical thinking — the mental process of acquiring and evaluating information to reach a logical conclusion or answer, as opposed to a simple memorization of facts.

cutoff score — a test score that places a student either inside or outside of a certain category. For example, a cutoff score may be used to place students either in or out of a developmental reading course.

developmental	referring to a course or program that develops skills not previously learned but required for a particular educational level. (Compare to **remedial**.)
developmental curriculum	a curriculum, usually sequential, of courses that prepare a student to take other courses at a more advanced educational level. College developmental courses generally prepare students in reading, writing, and mathematics, but can also teach academic study skills, academic acculturation, critical thinking, and other skills.
exit criteria	criteria that mark the successful completion of a course of study.
external evaluation	the evaluation of a program or course by those not connected with instruction or administration of the program or course.
graduation credit	credit given by an educational institution that counts toward graduation in a particular program of study.
institutional credit	credit given by an educational institution that does not count toward graduation in a particular program of study, but may be used for financial aid or other purposes.
intrusive advising	a form of advising in which advisers, faculty, and counselors intervene whenever they believe it is necessary to advise students and solve problems. In intrusive advising, the adviser, not only the student, may take the initiative to convene an advising session.
learning community	any of a number of educational structures that link several existing courses together or restructure the current curricular program or material. The purpose of a learning community is to provide students with opportunities for deeper understanding and integration of content. It also allows for more student-to-student and student-instructor interaction, as students and instructors are both considered participants in the same learning process.
MCCDEC	the Massachusetts Community College Developmental Education Committee.
mission statement	a general statement of the purpose, duties, and responsibilities of an educational institution, its programs, or its administrative areas.
outcomes	the skills and knowledge expected to be acquired by a learner at the end of a course of study.

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paired courses linkages between developmental and college-level courses. The developmental courses teach the academic skills necessary to survive in the college-level courses, and students are simultaneously enrolled in both. (Compare to **bridge programs/courses**.)

performance-based testing testing that requires students to perform hands-on tasks, such as writing an essay or conducting a science experiment. Such assessments are becoming increasingly common as alternatives to multiple-choice, machine-scored tests.

prerequisite course a course that must be taken before another course can be taken because it teaches required skills for that course.

professional development opportunities for faculty, staff, and administrators to improve their professional knowledge and/or skills, either in their current area of expertise or in another area.

raw score the total number of correct answers on an exam.

remedial referring to a course or program that reviews skills previously learned that are required for a particular educational level. (Compare to **developmental**.)

retention keeping previously registered students in college.

standard error of measurement a way of reporting the reliability of a test. It is an estimate, in test score units, of how large the error in measurement is likely to be. For example, if the SEM for a test such as the CPT reading test is +/- 8 units, and the actual score is 54, then a student would be likely to get anywhere between 46 and 62 as a score on a retaking of the test.

supplemental instruction instruction that takes place in addition to the usual classroom instruction of a course. The instruction is led by a Supplemental Instruction leader (usually a teaching assistant or tutor), and the instruction is designed to reinforce the content of the course and at the same time offer course-specific study, problem-solving and test-preparation strategies.

support services all those services that serve students outside the classroom, including advising and counseling services, and supplemental instruction services.

Appendix F

Best Practices

FIRST ANNUAL CONFERENCE ON TEACHING AND LEARNING 1997

Selected Topics:

Assessment and Placement

"Bridging the Test Gap: Successful Strategies for Passing the Entrance Exam"

Curriculum Design and Delivery

"Fostering Metacognitive Awareness in the Basic Writing Classroom"

"Alternative Delivery Systems for Introductory Algebra"

"The Dynamics of Teaching in a Network Computer Classroom"

"Learning by Doing: Revising the Business Administration Curriculum to Include Active Learning and Outcomes-based Assessment"

"Writing Process: An Interactive Multimedia Lesson On Rewriting for Developmental & ESL Students"

"Teaching Chemistry To Non-Chemistry Majors with Diverse Backgrounds"

"Fostering Confidence in the Underprepared Math Student"

"Access and Excellence: Computer Aided Instruction with Electronic Curricula"

"Faculty Home Page as a Teaching Tool"

Support Services

"Early and Often: An Integrated, Institution-wide Strategy for Supporting Underprepared Students"

"Early Intervention: An Integrated Approach to Academic Support"

Organizational Structure

"Fostering A Community College/State College Partnership for Developmental Education"

SECOND ANNUAL CONFERENCE ON TEACHING AND LEARNING 1998

Selected Topics:

Curriculum Design and Delivery

"Collaborative Writing Engages Students in Learning Mathematics"

"Developing a Computerized Anatomy and Physiology Laboratory"

"Creating a Supportive Learning Environment"

"Inside a Learning Community"

"Developing the Student Writer: An Assessment Model"

Support Services

"The Smart Classroom: Technology, Techniques, Tips"

Organizational Structure

"Technological Wholeness in the Community College Classroom"

Appendix G

The Institute for Higher Education Policy

The Institute for Higher Education Policy is a non-profit, non-partisan research organization located in Washington, DC. Since it was founded in 1993, The Institute has conducted numerous studies concerning higher education policy and administration at the federal, state, and institutional levels. The Institute has worked with several states, including Massachusetts, Maryland, Missouri, New Jersey, and Puerto Rico, in examining various aspects of their higher education programs.

In Massachusetts, The Institute served as staff to a blue-ribbon task force convened by the Chancellor of Higher Education that analyzed student aid programs in the state, identified major goals for the Commonwealth, and offered several policy recommendations to meet those goals. The Institute has also performed a comprehensive assessment of the state's McNair Reserve access and retention programs, and conducted analyses in support of the recently enacted Community College Cost Initiative.

Project staff include Jamie Merisotis, President, and Ronald Phipps, Senior Associate. As President of The Institute, Mr. Merisotis manages projects concerning higher education financing, student demographics and outcomes, education outreach and support, and federal policy. He previously served as Executive Director of the bipartisan National Commission on Responsibilities for Financing Postsecondary Education. Dr. Phipps manages projects at The Institute concerning student access and success, academic policy, distance learning, and private career schools. Dr. Phipps previously served as the Assistant Secretary for Academic Affairs and Planning at the Maryland Higher Education Commission, and Executive Director of the Alaska Postsecondary Education Commission.

Additional information about The Institute may be obtained at **www.ihep.com**.

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